

Tektronix MSO44 4-BW-200

Tektronix MSO44 4-BW-200 Mixed Signal Oscilloscope User Manual

Model: MSO44 4-BW-200

1. INTRODUCTION

This user manual provides comprehensive instructions for the operation, maintenance, and troubleshooting of the Tektronix MSO44 4-BW-200 Mixed Signal Oscilloscope. This advanced instrument is designed for precise signal analysis, offering high resolution and versatile measurement capabilities for various applications, including embedded systems, power electronics, and automotive electronics.

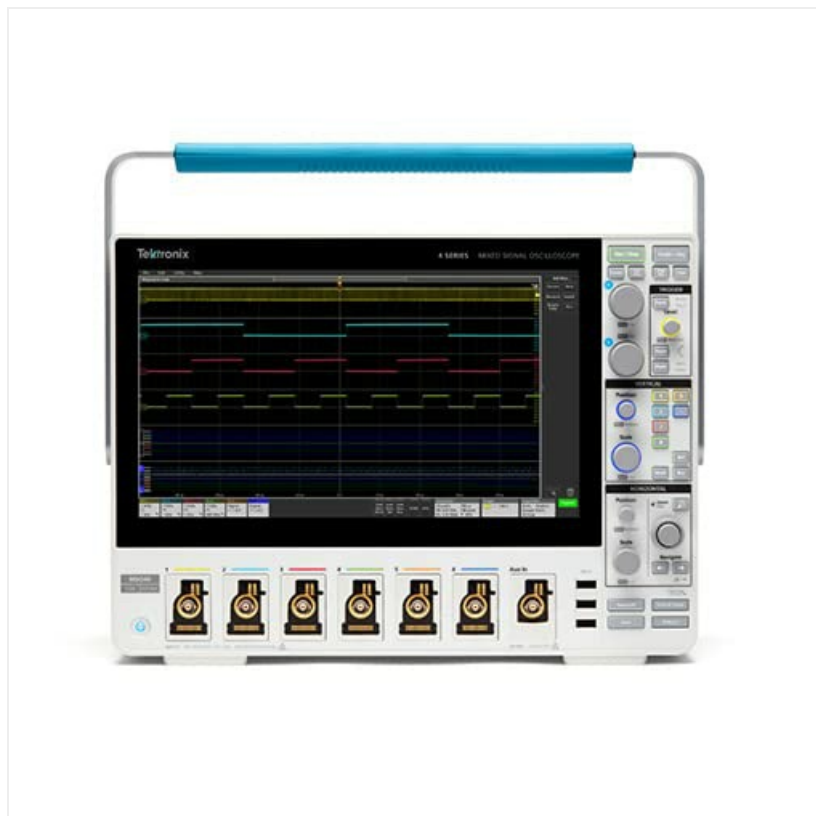


Figure 1: Front view of the Tektronix MSO44 4-BW-200 Mixed Signal Oscilloscope, showcasing its large touchscreen display, multiple input channels, and control knobs. The device features a blue handle for portability.

2. SETUP AND INITIAL CONFIGURATION

2.1 Unpacking and Inspection

Carefully remove the oscilloscope from its packaging. Inspect the unit for any signs of physical damage that may have occurred during transit. Retain the original packaging for future transportation or storage.

2.2 Power Connection

1. Ensure the oscilloscope's power switch is in the OFF position.
2. Connect the provided power cord to the AC input on the rear panel of the oscilloscope.
3. Plug the other end of the power cord into a grounded AC power outlet.

2.3 Initial Power On

Press the power button located on the front panel. The oscilloscope will perform a self-test and boot up. The display will show the Tektronix logo followed by the main measurement interface.

2.4 Connecting Probes and Inputs

The MSO44 features FlexChannels, which can be configured as analog or digital inputs.

- For analog signals, connect BNC probes to the input connectors on the front panel.
- For digital signals, use the appropriate digital probe accessories (sold separately) and connect them to the dedicated digital input ports.
- Ensure all connections are secure to prevent signal degradation.

3. OPERATING INSTRUCTIONS

3.1 User Interface Overview

The oscilloscope features a 13.3-inch HD capacitive touchscreen display for intuitive operation. Key controls are also available via physical knobs and buttons on the right side of the display.

3.2 Basic Measurements

1. **Channel Setup:** Press the channel button corresponding to the input you wish to configure. Use the touchscreen or vertical scale knob to adjust vertical sensitivity (Volts/Div).
2. **Time Base:** Use the horizontal scale knob to adjust the time base (Seconds/Div) to view the desired number of cycles.
3. **Triggering:** The trigger system stabilizes repetitive waveforms. Use the trigger level knob to set the trigger threshold. Select trigger type (Edge, Pulse, Runt, etc.) from the trigger menu on the screen.
4. **Measurements:** Access the 'Measure' menu to add automatic measurements such as frequency, peak-to-peak voltage, RMS, etc.

3.3 Advanced Features

- **FlexChannel Technology:** Each FlexChannel input can be configured as one analog channel or eight digital logic channels. This is configured through the channel setup menu.
- **High Resolution Mode:** The oscilloscope offers 12-bit ADC resolution, which can be enhanced to 16 bits in High Resolution Mode for more precise measurements. Enable this mode via the display settings.
- **Record Length:** The MSO44 features a 31.25 M record length, allowing for capture of long signal durations at high sample rates. Adjust record length settings in the acquisition menu.

- **Analysis Tools:** Utilize built-in analysis tools such as FFT (Fast Fourier Transform) for frequency domain analysis, cursors for precise point measurements, and waveform math functions.

4. MAINTENANCE

4.1 Cleaning the Instrument

To maintain the performance and appearance of your oscilloscope:

- **Exterior:** Use a soft, damp cloth with a mild detergent to clean the exterior surfaces. Avoid abrasive cleaners or solvents.
- **Display:** Use a soft, lint-free cloth specifically designed for cleaning electronic displays. Do not spray cleaning solutions directly onto the screen.
- **Connectors:** Keep input connectors clean and free of dust. Use compressed air if necessary, but avoid inserting objects into the connectors.

4.2 Calibration

The MSO44 is factory calibrated. For optimal performance, periodic calibration by a qualified service center is recommended. Refer to the Tektronix website or contact support for calibration services.

4.3 Storage

When not in use for extended periods, store the oscilloscope in a clean, dry environment, away from direct sunlight and extreme temperatures. Use the original packaging or a suitable protective case.

5. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display after power on	Power cord not connected; Power outlet issue; Internal fault	Check power cord connection; Verify power outlet functionality; Contact Tektronix support
No waveform displayed	Probe not connected; Incorrect channel settings; Trigger not set correctly; Signal too small or large	Ensure probe is connected and functional; Check channel voltage/division settings; Adjust trigger level and type; Adjust vertical scale or input signal
Unstable waveform	Improper trigger settings; Noise in signal; Grounding issue	Adjust trigger source, level, and slope; Use averaging or bandwidth limit; Ensure proper grounding of the oscilloscope and circuit
Touchscreen unresponsive	Temporary software glitch; Screen calibration needed	Restart the oscilloscope; Refer to the full manual for touchscreen calibration procedures

6. SPECIFICATIONS

The following table outlines the key technical specifications for the Tektronix MSO44 4-BW-200 Mixed Signal Oscilloscope.

Feature	Specification
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Feature	Specification
Number of FlexChannels	4
Bandwidth (all analog channels)	200 MHz
Sample Rate (all analog/digital channels)	6.25 GS/s (real-time)
Vertical Resolution	12 bits ADC (16 bits in High Resolution Mode)
Display	13.3 in. color HD (1920 x 1080) capacitive touchscreen
Record Length	31.25 M points
Product Dimensions	2.76 x 0.79 x 10.24 inches
Item Weight	48.75 Pounds

7. WARRANTY AND SUPPORT

7.1 Warranty Information

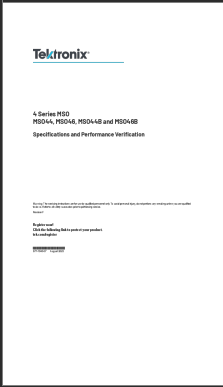
Tektronix products are backed by a standard warranty. For detailed information regarding the warranty period and terms for your MSO44 4-BW-200 oscilloscope, please refer to the warranty card included with your product or visit the official Tektronix website.






7.2 Technical Support

Should you encounter any issues or require technical assistance, please contact Tektronix customer support.

- **Online Resources:** Visit the official Tektronix support website for FAQs, drivers, software updates, and additional documentation.
- **Contact Information:** Refer to the Tektronix website for regional contact numbers and email support.
- When contacting support, please have your product model number (MSO44 4-BW-200) and serial number ready.

Related Documents - MSO44 4-BW-200

	<p>Tektronix 4 Series MSO Oscilloscope Specifications and Performance Verification</p> <p>Comprehensive technical specifications and performance verification procedures for Tektronix 4 Series Mixed Signal Oscilloscopes (MSO), including models MSO44, MSO46, MSO44B, and MSO46B. This document details instrument capabilities and testing methods.</p>
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 <p>4 Series MSO MSO44, MSO46, MSO44B and MSO46B Specifications and Performance Verification</p> <p>Search Online: Product ID MSO44, MSO46, MSO44B, MSO46B</p>	<p>Tektronix 4 Series MSO Oscilloscope: Specifications and Performance Verification</p> <p>Detailed specifications and performance verification procedures for the Tektronix 4 Series MSO oscilloscopes, including models MSO44, MSO46, MSO44B, and MSO46B. Covers electrical, timing, trigger, and measurement capabilities.</p>
 <p>4 Series Mixed Signal Oscilloscopes Declassification and Security Instructions MSO44, MSO46</p> <p>Search Online: Product ID MSO44, MSO46</p>	<p>Tektronix 4 Series Mixed Signal Oscilloscopes Declassification and Security Instructions</p> <p>Instructions for declassifying and sanitizing Tektronix 4 Series Mixed Signal Oscilloscopes (MSO44, MSO46) to ensure data security, covering procedures for working and non-functional instruments.</p>
 <p>4/5/6 Series MSO MSO44, MSO46, MSO54, MSO56, MSO58, MSO58LP, MSO64 Printable Help</p> <p>Search Online: Product ID MSO44, MSO46, MSO54, MSO56, MSO58, MSO58LP, MSO64</p>	<p>Tektronix 4/5/6 Series MSO Printable Help: User Guide</p> <p>Comprehensive user manual for Tektronix 4/5/6 Series Mixed Signal Oscilloscopes (MSO44, MSO46, MSO54, MSO56, MSO58, MSO58LP, MSO64), detailing features, installation, operation, and interface.</p>
 <p>3 Series MDO Mixed Domain Oscilloscope Printable Help</p> <p>Search Online: Product ID MDO32, MDO34</p>	<p>Tektronix 3 Series MDO Mixed Domain Oscilloscope: Printable Help Guide</p> <p>Comprehensive printable help guide for the Tektronix 3 Series MDO Mixed Domain Oscilloscope (MDO32, MDO34), covering installation, operation, features, and troubleshooting.</p>
 <p>6 Series B MSO MSO64B, MSO66B, MSO68B Service Manual</p> <p>Search Online: Product ID MSO64B, MSO66B, MSO68B</p>	<p>Tektronix 6 Series B MSO Service Manual: MS064B, MS066B, MS068B</p> <p>Detailed service manual for Tektronix 6 Series B Mixed Signal Oscilloscopes (MS064B, MS066B, MS068B), covering theory of operation, maintenance, troubleshooting, and replaceable parts.</p>